Application of MARLAP to Validation and Verification of Existing Data

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Introduction

When data are to be used for regulatory purposes, data must be assessed before use by experts other than the analysts who generated the data. This process is data verification and validation.

MARLAP (Multi-Agency Radiological Laboratory Analytical Protocols Manual) is a guidance document for radiological data.

- Project planning
- Data analysis
- Data review

The Army Corps Of Engineers, Buffalo District (USACE) contracted with the Analytical Chemistry Laboratory to apply the MARLAP document to the verification and validation process for existing data generated for the FUSRAP program.

- **Apply radiochemistry knowledge**
- **Provide training**
- **Develop methods and materials for current data packages and future projects**

Analytical Chemistry Laboratory Services

- Review of MARLAP, Quality Assurance Plans and previous data verification and validation protocols and worksheets by radiochemistry expert
- Radiochemistry training for data validators – **three day class at Argonne**
  - Application of professional judgment to data when reanalysis or consultation with laboratory is not possible
- Design and development of an Excel worksheet for efficient data verification and validation
  - Designed for specific data packages already submitted to USACE
  - Flexible setup to allow for worksheet use for future projects
  - Worksheet is usable by both verifier and validator of the data and will print in a format usable in the final report
- Workshop on data verification and validation – **two day workshop in Buffalo at USACE**
  - Use of validation and verification worksheet
  - Application of MARLAP to existing data and project planning
    - How to use MARLAP to make verification, validation and use of radiological data easier for future projects
- Radiochemist available for future consultation and professional judgment questions

Data Verification and Validation

Data to be used for legal or regulatory purposes needs to be reviewed and assessed before use. Data are reported in a data package with raw data and calibration information.

Data verification and validation is used to judge the usability of each data point for the project. Usability is judged against the Quality Assurance Project Plan (QAPP) and other project documents.

Data verification and validation provides data for the project with coding to indicate the usability of the data. The raw data are not used after validation and verification.

Working with Existing Data Packages

Documentation may be missing from the data package that is required in project documents.

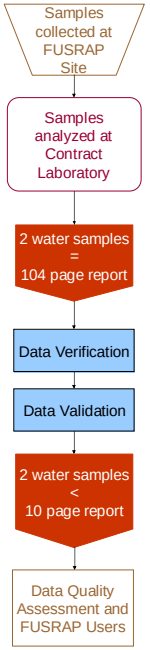
The data validator must determine from data in package if data are usable or not, and flag data appropriately.

How to Tell If Data Are Usable

Data Verification – An assessment of the presence of data and the supporting documentation as well as the adherence to documented requirements.

Data Validation – Application of professional judgment to data flagged as non-compliant in the verification stage and the assessment of the usability of the data. Data are flagged with codes denoting the nature of the non-compliance.

Data Quality Assessment – A project-wide review of the data, looking for problems on a global scale. Looks at report generated by the data validator, not at the original data package.



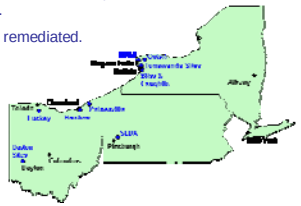
FUSRAP

Formerly Used Sites Remedial Action Program

Initiated in 1974 to identify, investigate and clean up or control sites used in early U.S. atomic energy programs.

47 sites in 14 states; about half are remediated.

This focus of this project was to assist the U.S. Army Corps of Engineers, Buffalo District, in establishing an efficient verification and validation program for FUSRAP data.



Great Lakes and Ohio River Division FUSRAP Sites

Summary

- The ACL was able to provide the U.S. Army Corps of Engineers with training, support and software tools for verifying and validating data.
- Training included radiochemistry, MARLAP, project planning for radiochemical analysis and hands-on worksheet training.

FUSRAP projects supporting this work:

Harshaw Chemical Site

Luckey Site

Painsville Site

SLDA Site

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